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Firm diversification and earnings management: Evidence from seasoned equity offerings

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Abstract Popular press suggests that diversified firms are more aggressive in managing earnings than non-diversified firms. We examine this claim in the seasoned equity offering (SEO) setting, where firms have been shown to have the incentive to manage earnings upwards. Using the cross-sectional modified Jones [(1991) J Accounting Res 29:193–228] model to measure discretionary current accruals, we find that discretionary current accruals are higher among diversified firms than in non-diversified ones. Our evidence is consistent with the view that the extent of firm diversification is directly related to the degree of earnings management. We further show that diversified issuers with high discretionary accruals underperformed other SEO firms.

Keywords Seasoned equity offerings · Corporate diversification · Earnings management · Accruals · Stock market performance

JEL Classifications G32 · G34 · M41

1 Introduction

Accounting manipulation, such as earnings management, has weakened the credibility of financial reporting and marred the quality of earnings (Munter 1999). This is especially so after the accounting frauds at Enron and WorldCom were uncovered. Several recent studies

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(e.g., Shivakumar 2000; Teoh et al. 1998; Rangan 1998) have examined whether managers overstate earnings prior to seasoned equity offerings (SEO), which provide a direct opportunity for managing earnings. These studies document that discretionary accruals are abnormally high around the year of the SEO, consistent with issuers employing accruals to deliberately overstate their earnings.[1] However, little is known about the nature of the prevailing environmental conditions, which could have influenced the SEO firm's discretionary accruals prior to the equity issuance.

In this paper, we argue that the extent of earnings management by SEO firms is conditioned upon its degree of business complexity such as that in a diversified firm.[2] We contend that information asymmetry is more severe for diversified firms compared to focused firms. The extent of opportunistic earnings management is likely to be higher the greater the level of information asymmetry (Dye 1988; Trueman and Titman 1988). On the one hand, diversification may be associated with greater coordination and economies of scope (Chandler 1977; Lewellen 1971; Gertner et al. 1994; Stein 1997). On the other hand, the agency costs that arise due to the separation of ownership and management are exacerbated in diversified firms (Denis et al. 1997). Increased information asymmetries between managers and owners in diversified firms could lead to over-investment and misallocation of resources (Stulz 1990; Matsusaka and Nanda 2002). On balance, the evidence in Berger and Ofek (1995) suggests that the agency costs are greater than the coordination and economies of scope benefits arising from diversification.

Given that prior studies have documented a positive link between SEO firms and discretionary accruals, we extend this strand of research by examining whether the level of discretionary accruals of SEO firms is conditional on their firm structure. To the extent that asymmetric information problems are more severe in a diversified firm, we expect the level of discretionary accruals to be higher in a diversified firm relative to a focused one.

Following Teoh et al. (1998), we use discretionary current accruals (DCA), which are easily manipulated by management, as a proxy for the degree of earnings management just prior to an SEO. Since prior research has shown that estimates of discretionary accruals are highly correlated with firm performance (Dechow et al. 1995; Kasznik 1999; Kothari et al. 2005), we investigate the robustness of DCA by considering two alternative controls for firm performance—lagged ROA and the difference in DCA between an SEO and a matched firm.

We find that diversified issuers exhibited larger DCAs than focused ones. Our results are robust across different measures of earnings management, even after controlling for growth opportunities, leverage, managerial and institutional ownership, firm size, and other factors that have been shown to be related to a firm's DCA. We also examine the market implications of earnings management by SEO firms. Consistent with the results from previous research (e.g., Teoh et al. 1998; Rangan 1998), we find that SEO firms with high

[1] Managers may exercise some discretion in computing earnings without violating generally accepted accounting principles. For example, firms may increase reported earnings by accelerating revenue recognition and deferring expense recognition, effectively shifting earnings to the current period from subsequent periods. Or they may increase earnings by changing accounting methods, revising their estimates of bad debt expense or the like, and using a variety of other techniques.

[2] Our central thesis is to examine the degree of information asymmetry between multi-segment (diversified) and single-segment (focused) issuers. Although initial public offerings (IPO) provide another possible setting to test the managerial incentives in accruals management, only 15% of the IPO firms from SDC database reported two or more segments. This is in contrast with the SEO firms where 31% recorded multiple segments. Hence, we examine the managerial incentives for boosting earnings around the issuance of seasoned equity.

accruals underperformed those with low accruals. We also find that diversified SEO firms, particularly those with high accruals, registered the most negative stock returns compared to other SEO firms.

Our study contributes to the literature by demonstrating that the extent of earnings management is a function of the firm's corporate structure. Prior studies (e.g., Teoh et al. 1998; Rangan 1998; Shivakumar 2000) examining the behavior of discretionary accruals before equity issuance did not consider the corporate structure of issuing firms. Consequently, it is not clear whether the behavior of discretionary accruals around the equity offering is attributable to a specific firm characteristic. We explicitly consider the relation between firm diversification and DCA.

The remainder of the paper is organized as follows. Section 2 discusses the development of our central hypothesis. Section 3 describes the sample data and research design. Section 4 presents our empirical results and discusses the findings. Section 5 summarizes and concludes.

2 Hypothesis development

Firms involved in earnings management face the cost of poor operating performance and low stock returns after an SEO. Loughran and Ritter (1997), Rangan (1998), and Teoh et al. (1998) show that earnings management is usually not transparent to investors, resulting in their overvaluing the new issues. Hence, the benefits of earnings management to a firm may be offset by the expected costs of greater exposure and litigation. The discovery of the presence of earnings management would reduce the credibility of the firm and impair its subsequent ability to raise capital at favorable terms.[3]

According to Dye (1988) and Trueman and Titman (1988), the extent of opportunistic earnings management should increase with the level of information asymmetry. Richardson (2000) provides empirical evidence that earnings management is greater for firms with a higher level of information asymmetry (measured by bid-ask spreads and analysts forecast dispersion). We argue that the extent of information asymmetry is likely to vary between diversified and focused SEO firms. The accounting information of a diversified firm may be noisier than that of a focused firm because of the aggregate nature of the diversified firm's accounting reports. Whereas divisional cash flows of diversified firms are observable by its managers, they are not known to outsiders and only noisy estimates are available. Thus, consolidated earnings reports convey little value-relevant information about the divisions.

Chandler (1977) argues that diversified firms could operate and coordinate distinct activities more efficiently than if those activities were operated by stand-alone firms. Diversified firms could ease information asymmetries between the firm and external investors by using internal capital markets to allocate resources more efficiently, diversifying income flows and avoiding inefficient bankruptcies, and exploiting economies of scope (Lewellen 1971; Gertner et al. 1994; Stein 1997).

However, the benefits of diversification may be offset by costs associated with increased information asymmetry between the headquarters and the individual divisions. Denis et al. (1997) and Chen and Steiner (2000) present evidence that diversification destroys value due to agency costs arising from ownership structure of the firms. Berger and Ofek (1995)

[3] For example, Dechow et al. (1996) find that firms suspected by the SEC for earnings management show an average stock price decline of 9% upon announcement of earnings.

find that the market value of equity and debt of diversified firms is less than what they would have if they separated into portfolios of focused firms. Their results imply that, on balance, the costs of diversification outweigh its benefits. Empirical evidence in the internal capital market research is consistent with the notion that information asymmetry and agency problems are more serious in a diversified firm relative to a focused firm. Rather than using the internal capital market as a means of allocating resources optimally, management may use the cash flow generated by healthy segments to subsidize underperforming segments. Lamont (1997), Shin and Stulz (1998), and Rajan et al. (2000) find evidence consistent with this type of redistribution.

The literature from corporate spin-offs, carve-outs, and targeted stock offerings also suggests that information asymmetry problems are more acute for diversified firms. Habib et al. (1997) and Nanda and Narayanan (1999) find that, following a breakup of a conglomerate into several focused units, the transparency of the resulting firms improves. Siddiqi and Warganegara (2003) report evidence that diversified firms use spin-offs to reduce capital mis-allocations. Moreover, Krishnaswami and Subramanian (1999) and Gilson et al. (2001) find that analysts coverage and forecast accuracy have increased after the breakup. This shows that the knowledge of a lack of scrutiny by financial analysts allows managers the opportunity to undertake earnings management since their actions are likely to go undetected. Furthermore, investors may find it difficult to undo earnings that have already been managed.

We focus on a setting where the direction of earnings management is clear, as SEO firms have strong incentives to engage in income-increasing behavior prior to the offering. The information asymmetry between management and investors creates an opportunity for managers to engage in earnings management prior to the SEO. To the extent that information asymmetry is more acute among diversified firms, we expect diversified SEO firms to be more aggressive in managing earnings than focused firms. Put differently, we expect the degree of firm diversification is to be positively associated with earnings management proxied by the level of DCAs. Specifically, we test the following hypothesis:

H1: Discretionary current accruals (DCAs) of diversified issuers in the year prior to the seasoned equity issuance are larger than those of focused issuers.

3 Data and research design

3.1 Data

We examine 940 new issues from the set of all SEOs reported in the Securities Data Corporation's (SDC) new-issues database during 1991–2001.[4] For a firm to be included, complete segment and financial information, which are necessary for the computation of the DCAs, must be recorded in the Compustat database. We collect managerial and institutional ownership data from *Global Researcher*. Following Hadlock et al. (2001), we focus on equity issues by diversified and focused firms that operate in closely related industries. We first identify all distinct segments' (three-digit) SIC codes of diversified firms that issued equity during each sample year. We then identify all focused firms that issued equity and operated in one of the identified industries in the same year. Issues by

[4] Teoh et al.'s (1998) sample consists of 1,265 SEOs between January 1970 to September 1989 while Rangan (1998)'s sample consists of 230 SEOs for the years 1987–1990. Our sample period does not overlap with those in these studies.

focused firms that do not fall in one of the identified industries are excluded. We also eliminate issues by diversified firms if they do not have at least one matched focused firm that issued equity in the same calendar year. A total of 940 equity issuers, representing 294 (31%) diversified and 646 (69%) focused firms make up the final sample. This distribution is similar to Hadlock et al.'s (2001) study, which reported 217 (34%) diversified and 424 (66%) focused issuers.

Table 1 reports the distribution of the SEO firms. In Panel A, we present the time-series of equity issues and firm type (i.e., diversified versus focused firm). In general, there is an increase in the number of firms that issued seasoned equity during the sample period. The greatest number of observations occurred in 2000 with 179 SEO issues (19% of the total sample). In Panel B, we report the distribution of SEOs by industry and firm type. The sample includes 49 separate SIC industries, indicating a wide distribution of firm types. Electronic and other electric equipment (SIC 3600–3699), chemical and allied products (SIC 2800–2899), and business services (SIC 7300–7399), have the largest concentration of SEOs, representing more than 40% of the total observations.

3.2 Research design

3.2.1 Discretionary current accruals

We employ the cross-sectional modified Jones (1991) model to measure discretionary accruals. This model has been shown to be subject to fewer measurement errors than other commonly used models (e.g., Subramanyam 1996; Dechow et al. 1995).[5] Bartov et al. (2001) provide additional evidence that cross-sectional models are consistently better able to detect earnings management vis-à-vis their time-series counterparts. Following Teoh et al. (1998), we focus our attention on DCAs since these accruals have been shown to have the greatest likelihood of manipulation by management. We define current accruals (CA) as the change in non-cash current assets less the change in operating current liabilities:

$$\begin{aligned} CA = &\Delta(\text{Current Assets} - \text{Cash}) \\ &- \Delta(\text{Current Liabilities} - \text{Current Portion of Long Term Debt}) \end{aligned} \tag{1}$$

To obtain the DCAs in a given year, we regress the following:

$$\left(\frac{CA}{TA}\right)_{i,t} = \beta_1 \left(\frac{1}{TA}\right)_{i,t} + \beta_2 \left(\frac{\Delta REV}{TA}\right)_{i,t} + \varepsilon_{i,t} \tag{2}$$

where CA_{it} is the current accruals for firm i in year t, with t being the fiscal year end prior to the SEO; TA_{it} is the total assets for firm i in year t; ΔREV_{it} measures the change in revenues for firm i in year t less revenues in t-1; and ε_{it} is the random residual term. Similar to previous studies, we estimate Eq. 2 cross-sectionally on all firms with the same two-digit SIC as that of the seasoned new issuer, but excluding the issuing firm.[6] DCAs are then estimated as:

[5] For example, Subramanyam (1996) finds that the parameter estimates in cross-sectional Jones models are more precise than their time-series counterparts due to the large number of degrees of freedom available in such a model.

[6] We require the presence of at least 20 firms in each two-digit SIC to run the regression.

Table 1 Distribution of SEOs by year, industry, and issuer type

Year of issue	Diversified firms	Focused firms	Total	% of sample
Panel A: distribution by year and issuer type (N = 940)				
1991	12	26	38	4.04
1992	18	26	44	4.68
1993	17	48	65	6.91
1994	15	30	45	4.79
1995	11	66	77	8.19
1996	17	74	91	9.68
1997	32	58	90	9.57
1998	26	51	77	8.19
1999	43	80	123	13.09
2000	56	123	179	19.04
2001	47	64	111	11.81
Total	294	646	940	100

SIC	Industry	Diversified firms	Focused firms	Total	% of sample
Panel B: distribution by industry and issuer type (N = 940)					
3600–3699	Electronic/other electric equipment	27	126	153	16.28
2800–2899	Chemical and allied products	18	107	125	13.30
7300–7399	Business services, including software	22	90	112	11.91
3800–3899	Instruments and related products	17	60	77	8.19
4900–4999	Electric/gas/sanitary services	36	40	76	8.09
4800–4899	Communications	34	30	64	6.81
1300–1399	Oil and gas extraction	27	34	61	6.49
3500–3599	Industrial machinery/equipment	23	27	50	5.32
8700–8799	Engineering & management services	5	23	28	2.98
3700–3799	Transportation equipment	7	11	18	1.91
3300–3399	Primary metal industries	6	9	15	1.60
8000–8099	Health services	5	10	15	1.60
3400–3499	Fabricated metal products	9	3	12	1.28
	Others (36 industries)	58	76	134	14.26
	Total	294	646	940	100

$$DCA_{i,t} = \left(\frac{CA}{TA}\right)_{i,t} - \hat{\beta}_1\left(\frac{1}{TA}\right)_{i,t} - \hat{\beta}_2\left(\frac{\Delta REV - \Delta TR}{TA}\right)_{i,t} \quad (3)$$

where $\hat{\beta}_i$ is the estimated parameters from Eq. 2 and $\Delta TR_{i,t}$ is the change in trade receivables for firm i in year t less the trade receivables in the previous year.[7]

Prior research documents that discretionary accrual estimates are correlated with firm performance (Dechow et al. 1995; Kasznik 1999; Kothari et al. 2005). We investigate the robustness of DCA by employing two additional measures that control for firm

[7] We subtract the increase in trade receivables ($\Delta TR_{i,t}$) from the change in sales to allow for the possibility of credit sales manipulation by issuers, such as allowing for generous credit policies in order to obtain higher sales figures prior to an offering.

performance. The first considers firm performance by including a lagged ROA in Eq. 2. We label this proxy PA_DCA1. Kothari et al. (2005) also suggest the use of a matched-firm approach to estimate discretionary accruals. Hence, the second additional DCA measure adjusts for firm performance by taking the difference in DCAs between the SEO and matched firms. The matched firm is selected on the basis of the same year, industry membership, diversification level, and ROA as the SEO firm. Specifically, multi-segment (single-segment) matched firms are selected based on the ROA that is closest to the ROA of the multi-segment (single-segment) SEO firms in the same two-digit SIC industry in the same year. We label this proxy PA_DCA2.

Our three proxies for discretionary accruals (DCA, PA_DCA1, PA_DCA2) are signed. The decision of whether to use directional discretionary accruals or the absolute value of discretionary accruals is driven by the nature of the study; specifically, whether or not there is an a priori expectation regarding management incentives. For example, Jones (1991) expected that import relief investigations would motivate managers to decrease earnings during the investigation period. Accordingly, his tests were designed to detect significant income-decreasing discretionary accruals. Warfield et al. (1995) examine the association between managerial ownership and earnings management. Because they do not have an a priori directional expectations regarding management's motivation for particular firm-year observations, they use the absolute value of discretionary accruals to capture management behavior. In our paper, we use the signed discretionary accruals because of our expectation that an impending stock issuance would motivate managers to have a preference for a higher income level. In such a context, directional accruals represent a more powerful test. In additional analyses, we restrict our sample to those SEO firms that report positive discretionary current accruals.

3.2.2 Firm diversification

We use three measures of corporate diversification. The first is a dummy variable, DSEG, equals one if the firm has operations in multiple segments, and zero if the firm has operations in a single segment (Ruland and Zhou 2005). The second measure for firm diversification is the number of business segments (NSEG) in an issuing firm. The third is the revenue-based Herfindahl index. Following prior studies (e.g., Comment and Jarrell 1995; Berger and Ofek 1995; Denis et al. 1997; Chen and Guo 2005), we compute the index as the sum of squares of each segment's sales to total sales of the company. Our third proxy for firm diversification (NHSALE) is measured by (1—revenue-based Herfindahl index), with a higher value indicating a higher level of diversification. We expect DSEG, NSEG and NHSALE to be positively associated with various proxies of earnings management.

There is some concern that the above measures of firm diversification may be distorted by the change in segment reporting requirement. Prior to 1998, the reporting of segment information was governed by SFAS No. 14, which required enterprises to classify line-of-business segment information using the industry approach. A major concern with SFAS No. 14 was that discretion in the definition of "industry" allowed many enterprises to report much less segment information to external users than what was reported internally (Ernst and Young 1998). In response to user concerns regarding segment reporting, the FASB issued SFAS No. 131, *Reporting Disaggregated Information about a Business Enterprise*, in 1997, which became effective for fiscal years beginning on or after January

1, 1998. Under SFAS No. 131, firms are required to report segments consistent with the way in which management organizes the business internally. Previous research shows that SFAS No. 131 increased the number of segments reported (e.g., Berger and Hann 2003; Herrmann and Thomas 2000; Street et al. 2000). This finding has been interpreted as evidence that SFAS No. 131 increased information about the diversity of a firm's operations. Accordingly, since our test period spans from 1991 to 2001, it is important to control for the effect of the change in segment reporting requirement on our measures of firm diversification. However, we posit that the bias introduced by the new standard is mitigated by the use of matched firms in our research design. Specifically, because both the sample and matched firms are subject to the same segment-reporting requirement (SFAS No. 14 before 1998 and SFAS No. 131 after 1998), any differences in DCAs are unlikely to be attributable to the change in the number of segments reported or information contained in the segment disclosure after the enactment of SFAS No. 131.

In addition to what has already been described, we control for variables that have been shown to affect the level of discretionary accruals. Firms with high growth options are more likely to smooth their earnings and cash flows in order to avoid underinvestment (Skinner 1993). We capture investment opportunity with a 5-year mean growth forecast by analysts (GROWTH).[8] Highly leveraged firms are sometimes known to reduce their debt-financing costs by recording greater income increasing accruals, thereby reducing creditors' perception of firm risk (Smith and Stulz 1985), freeing up potentially binding debt covenants (Smith and Stulz 1985; Watts and Zimmerman 1986), and increasing debt capacity (Leland 1998). We measure leverage (LEV) by the ratio of total debts to total equity. Warfield et al. (1995) provide evidence that managerial ownership is inversely related to the magnitude of accounting accrual adjustments and Rajgopal et al. (1999) find that the absolute value of discretionary accruals is negatively related to the level of institutional ownership. We control for firm ownership, where INSIDE and INST are the level of shares held by insiders and institutional investors, respectively.

Burgstahler and Dichev (1997) show that firms manage reported earnings to avoid earnings decreases and losses. We estimate the change in pre-managed earnings from those in the previous year to capture managers' incentives in avoiding earnings decreases. Pre-managed earnings are measured by earnings before extraordinary items divided by total assets net of DCAs. DECLINE, a dummy variable, equals one if there is a decline in pre-managed earnings from the previous year's earnings, and zero otherwise. Pre-managed earnings are also used to capture managers' incentives to avoid losses. LOSS, is a dummy variable that takes on the value of one if pre-managed earnings are negative, and zero otherwise.[9] We also control for firm size (FSIZE), the natural log of a firm's market capitalization (see DeFond and Park 2001; Becker et al. 1998). Lastly, we include a dummy variable, SF131, which equals one when the fiscal year end of the SEO

[8] The widely used Jones and Jones-like models used in measuring discretionary accruals are potentially misspecified and can therefore result in misleading inferences about earnings management if no attempt is made to control for long-term earnings growth (McNichols 2000).

[9] The use of a continuous measurement to capture managers' incentive to avoid earnings decline and loss may cause serious econometric problems since the level of DCAs is used as a dependent variable and indirectly used as an explanatory variable in the regression model. The use of a dummy variable alleviates this econometric concern.

firms falls on or after January 1, 1998, and zero otherwise. Specifically, we run the following model:[10]

$$\begin{aligned} \mathrm{EM}_{it} = & \beta_0 + \beta_1 \mathrm{DIVERSIFICATION}_{it} + \beta_2 \mathrm{GROWTH}_{it} + \beta_3 \mathrm{LEV}_{it} + \beta_4 \mathrm{INSIDE}_{it} + \beta_5 \mathrm{INST}_{it} \\ & + \beta_6 \mathrm{DECLINE}_{it} + \beta_7 \mathrm{LOSS}_{it} + \beta_8 \mathrm{FSIZE}_{it} + \beta_9 \mathrm{SF131}_{it} + \varepsilon_{it} \end{aligned} \tag{4}$$

where EM = Earnings Management measured by DCA, PA_DCA1, or PA_DCA2, with DCA estimated by the cross-sectional Jones (1991) model, PA_DCA1 = DCAs estimated with lagged ROA in the cross-sectional Jones model, and PA_DCA2 = DCAs of SEO firms less DCAs of matched firms; DIVERSIFICATION = DSEG, NSEG or NHSALE, with DSEG = 1 if the firm operates in multiple segments, and zero otherwise, NSEG = number of segments reported by SEO firm and NHSALE = 1—revenue-based Herfindahl index; GROWTH = 5-year mean growth estimates by analysts; LEV = ratio of total debt to total equity; INSIDE = percent of shares held by the management; INST = percent of shares held by institutional investors; DECLINE = 1 if there is a decline in pre-managed earnings from those of the previous year, and zero otherwise; LOSS = 1 if pre-managed earnings are negative, and zero otherwise; FSIZE = natural logarithm of market capitalization at fiscal year end prior to the equity issue; and SF131 = 1 when the fiscal year end of the SEO firms falls on or after January 1, 1998, and zero otherwise.

4 Results

4.1 Descriptive statistics

Descriptive summary statistics for the SEO firms are shown in Panel A of Table 2. The mean and median of the three measures of discretionary current accruals (DCA, PA_DCA1, and PA_DCA2) are all positive, suggesting that SEO firms generally report positive abnormal accruals prior to equity offerings. This finding is consistent with the pattern of discretionary accruals reported by Teoh et al. (1998), Rangan (1998), and Shivakumar (2000). The mean values of assets and market capitalization of the SEO firms are $1,355 million and $2,014 million, respectively. On average, the samples of SEO firms are followed by 6.47 analysts, 98% of which are audited by the Big 5 or 6 auditors. Analysts, on average, forecast a long-term 5-year growth rate of 20% for the SEO firms, indicating their general optimism on their growth potential. This is supported by the relatively high mean (median) market to book ratio of 4.96 (3.48). Last, but not least, on average, 20% and 41% of the shares are held by insiders and institutional owners before equity issuance.

In Panel B of Table 2, we present the summary statistics of selected variables for the set of matched firms. The mean DCA and PA_DCA1 of the matched firms are 0.016 and 0.017, respectively, which are smaller than that those of the SEO firms. The mean asset size and market capitalization of the matched firms, $1,668 million and $1,659 million, respectively, are comparable to those of the SEO firms. The mean (median) ROA of the SEO and matched firms is –0.04 (0.04) and –0.03 (0.03), respectively. The proximity of the ROAs suggests that the SEO and matched sample firms have identical performance.

[10] Although high quality auditors may constrain aggressive and opportunistic reporting (Becker et al. 1998), we do not include this variable in the model, as 98% of our firms are audited by the Big 5 or 6 audit firms. We also include the lag of DCAs to control for the reversal of discretionary accruals. We dropped this variable as it turned out to be highly insignificant.

Table 2 Summary statistics for SEO firms and matched sample

	Mean	Median	1st Quartile	3rd Quartile	S.D.
Panel A: sample firms (N = 940)					
DCA	0.0533	0.0060	–0.0304	0.0607	0.3960
PA_DCA1	0.0439	0.0071	–0.0360	0.0621	0.4885
PA_DCA2	0.0372	0.0003	–0.0616	0.0763	0.7288
Number of segments	1.67	1.00	1.00	2.00	1.21
Herfindahl index based on sales	0.87	1.00	0.74	1.00	0.23
Total assets ($m)	1,355	178	62	813	3,19
Market capitalization ($m)	2,014	369	130	1,86	8,89
Market to book ratio	4.96	3.48	1.97	6.22	11.84
Returns on assets	–0.04	0.04	-0.05	0.07	0.24
Earnings per share	0.06	0.27	–0.36	0.71	1.53
Debt to equity ratio	0.83	0.37	0.03	1.14	2.79
Number of analysts following	6.47	4.00	2.00	8.00	6.18
Analysts' long-term forecast	0.20	0.20	0.08	0.28	0.15
Insider ownership	0.20	0.12	0.01	0.31	0.23
Institutional ownership	0.41	0.38	0.20	0.60	0.26
Number of firms audited by big N	0.98	1.00	1.00	1.00	0.14
Panel B: matched firms (N = 940)					
DCA	0.0161	0.0071	–0.0304	0.0659	0.6939
PA_DCA1	0.0169	0.0062	–0.0395	0.0700	0.3884
Number Of segments	1.68	1.00	1.00	2.00	1.25
Total assets ($m)	1,668	114	27	633	6,741
Market capitalization ($m)	1,659	150	34	672	8,341
Market to book ratio	2.87	2.15	1.20	3.95	23.62
Returns on assets	–0.03	0.03	–0.05	0.07	0.23
Earnings per share	–0.20	0.28	–0.20	0.90	8.63
Debt to equity ratio	0.77	0.27	0.01	0.90	5.43

DCA = discretionary current accruals estimated by cross-sectional Jones model;

PA_DCA1 = discretionary current accruals estimated with lagged ROA in the cross-sectional Jones model; and

PA_DCA2 = discretionary current accruals of the SEO firms minus the discretionary current accruals of the matched firms, both estimated from cross-sectional Jones model

4.2 Correlations

In Table 3, we report the Pearson correlations among the variables shown in equation (4). While the three proxies for earnings management are highly correlated, the correlations between DCA, PA_DCA1, and PA_DCA2 are less than one, indicating each variable is a distinct estimate of a firm's financial statement bias. The positive correlations between proxies of earnings management and firm diversification further reveal that diversified firms tend to engage in income-increasing earnings management during SEOs. The three measures of DCAs are also positively related to DECLINE, indicating that SEO firms are

Table 3 Pearson correlation coefficients

	DCA	PA_DCA1	PA_DCA2	DSEG	NSEG	NHSALE	GROWTH	LEV	INSIDE	INST	DECLINE	LOSS	FSIZE	SF131
DCA	1.00	0.86**	0.36**	0.09**	0.10**	0.10**	0.10**	–0.01	–0.05	–0.04	0.20**	0.20**	–0.03	0.09**
PA_DCA1		1.00	0.31**	0.10**	0.10**	0.10**	0.04	0.00	–0.08*	–0.01	0.19**	0.14**	–0.02	0.06
PA_DCA2			1.00	0.08*	0.05	0.07*	0.03	0.02	0.01	0.01	0.09**	0.09**	–0.04	0.02
DSEG				1.00	0.82**	0.88**	–0.08**	0.02	–0.12**	0.07*	0.07*	–0.06	0.26**	0.10**
NSEG					1.00	0.88**	–0.07*	0.03	–0.16**	0.13**	0.06	–0.10**	0.38**	0.15**
NHSALE						1.00	–0.06	0.02	–0.12**	0.11**	0.07*	–0.07*	0.31**	0.12**
GROWTH							1.00	–0.02	0.07*	0.10**	0.02	0.03	0.18**	0.16**
LEV								1.00	0.00	0.05	0.05	0.03	0.00	–0.03
INSIDE									1.00	–0.17**	0.08*	0.03	–0.19**	–0.05
INST										1.00	0.05	–0.14**	0.39**	0.11**
DECLINE											1.00	0.31**	–0.01	0.00
LOSS												1.00	–0.14**	0.18**

Table 3 continued

	DCA	PA_DCA1	PA_DCA2	DSEG	NSEG	NHSALE	GROWTH	LEV	INSIDE	INST	DECLINE	LOSS	FSIZE	SF131
FSIZE													1.00	0.29**
SF131														1.00

DCA = discretionary current accruals estimated by cross-sectional Jones model;

PA_DCA1 = discretionary current accruals estimated with lagged ROA in the cross-sectional Jones model;

PA_DCA2 = discretionary current accruals of the SEO firms minus the discretionary current accruals of the matched firms;

DSEG = 1 if the firm is operating in multiple segments, and zero otherwise;

NSEG = number of segments reported by SEO firm;

NHSALE = 1—revenue-based Herfindahl index;

GROWTH = 5-year mean growth estimates by analysts;

LEV = ratio of total debt to total equity;

INSIDE = percent of shares held by the management;

INST = percent of shares held by institutional investors;

DECLINE = 1 if there is a decline in pre-managed earnings from previous year's earnings, and zero otherwise;

LOSS = 1 if the pre-managed earnings are negative, and zero otherwise;

FSIZE = natural logarithm of market capitalization at fiscal year end prior to the equity issue; and

SF131 = 1 when the fiscal year end of the SEO firms falls on or after 1, January 1998, and zero otherwise

*Significant at $p < 0.05$ (two-tailed);**Significant at $p < 0.01$(two-tailed)

more likely to report income-increasing accruals when there is a decline in earnings prior to the issue. The significant positive correlation between DCA and income loss (LOSS) indicates that firms that experience a loss prior to the SEO are more likely to engage in earnings management. Together, these observations provide further evidence that SEO firms engage in earnings management during the SEO process.

4.3 Cross-sectional regression results

4.3.1 All sample firms

The results of the OLS regression for testing the association between firm diversification and DCAs are presented in Table 4. The dependent variable includes discretionary accruals, with and without an adjustment for firm performance, estimated from the cross-sectional modified Jones (1991) model. The three proxies for firm diversification include an indicator variable for multi-segment firms (DSEG), the number of business segments (NSEG) and the revenue-based Herfindahl index (NHSALE). Consistent with our expectation, the coefficient estimate for DSEG, NSEG and NHSALE is positive and statistically significant at the 1 or 5% level across various measures of earnings management (i.e., DCA, PA_DCA1, and PA_DCA2). This finding is consistent with our prediction that discretionary current accruals (DCAs) of diversified issuers in the year prior to the seasoned equity issuance are larger than those of focused issuers, after controlling for the factors that have been shown to be associated with DCAs.

The coefficient estimate for GROWTH is positive and significantly associated with DCA, indicating that firms with high growth options are more likely to smooth their earnings and cash flows to avoid underinvestment (Skinner 1993). However, when the DCAs are adjusted for firm performance, GROWTH is no longer associated with either PA_DCA1 or PA_DCA2. Similar to Warfield et al. (1995), we find that managerial ownership is inversely related to the magnitude of accounting accrual adjustments (proxied by DCA and PA_DCA1). Contrary to the evidence reported by Rajgopal et al. (1999), there is no indication that institutional investors constrain the extent of earnings management. This result, however, is not surprising, given that prior studies have also shown that institutional investors are fixated on short-term performance to the detriment of long-term firm value (Bushee 1998; Graves 1988). The coefficient estimates for DECLINE and LOSS are generally positive and significant at the conventional level, consistent with the existence of strong incentives for managers to engage in accruals management in order to avoid earnings decline and losses (Burgstahler and Dichev 1997). FSIZE is negatively associated with the three measures of earnings management. SF131 is not associated with various measures of discretionary current accruals. These findings, together with our use of matched firms in computing PA_DCA2, provide no supporting evidence that the observation of significant association between firm diversification and earnings management is driven by the introduction of SFAS No. 131.

4.3.2 Sample firms with positive discretionary current accruals

We postulate that SEO firms are likely to report positive discretionary accruals prior to the offerings, hence we also analyze separately those SEO firms that report positive discretionary current accruals. The results are reported in Table 5. We find that for this reduced set of sample, all three proxies of firm diversification are generally positive and

Table 4 Regression results

Dependent variable:	DCA			PA_DCA1			PA_DCA2		
Constant	0.007	–0.009	0.022	0.02	0.003	0.036	0.029	0.008	0.050
	(0.12)	(–0.16)	(0.38)	(0.28)	(0.04)	(0.50)	(0.27)	(0.07)	(0.46)
DSEG	0.092			0.100			0.168		
	(3.27)**			(2.85)**			(3.14)**		
NSEG		0.045			0.047			0.051	
		(3.96)**			(3.32)**			(2.37)*	
NHSALE			0.214			0.233			0.322
			(3.66)**			(3.18)**			(2.88)**
GROWTH	0.003	0.003	0.003	0.001	0.002	0.001	0.002	0.002	0.002
	(3.49)**	(3.63)**	(3.50)**	(1.61)	(1.71)	(1.61)	(1.21)	(1.13)	(1.14)
LEV	–0.003	–0.003	–0.003	–0.002	–0.002	–0.002	–0.004	0.003	0.004
	(–0.72)	(–0.76)	(–0.71)	(–0.31)	(–0.34)	(–0.30)	(–0.42)	(0.41)	(0.43)
INSIDE	–0.134	–0.125	–0.135	–0.220	–0.212	–0.221	–0.022	0.022	0.016
	(–2.36)*	(–2.21)*	(–2.38)*	(–3.10)**	(–2.99)**	(–3.12)**	(0.20)	(0.21)	(0.15)
INST	–0.063	–0.062	–0.068	–0.035	–0.034	–0.040	0.001	0.102	0.098
	(–1.18)	(–1.16)	(–1.27)	(–0.52)	(–0.50)	(–0.59)	(1.05)	(1.00)	(0.96)
DECLINE	0.121	0.119	0.120	0.157	0.155	0.156	0.077	0.08	0.077
	(4.57)**	(4.49)**	(4.52)**	(4.74)**	(4.68)**	(4.69)**	(1.52)	(1.58)	(1.53)
LOSS	0.100	0.104	0.101	0.074	0.078	0.075	0.109	0.110	0.109
	(3.64)**	(3.80)**	(3.67)**	(2.15)*	(2.27)*	(2.18)*	(2.08)*	(2.09)*	(2.07)*
FSIZE	–0.019	–0.024	–0.021	–0.019	–0.024	–0.021	–0.037	–0.039	–0.038
	(–2.02)*	(–2.54)*	(–2.22)*	(–1.64)	(–2.05)*	(–1.82)	(–2.13)*	(–2.14)*	(–2.15)*
SF131	0.047	0.042	0.046	0.038	0.033	0.037	0.007	0.005	0.008
	(1.72)	(1.54)	(1.70)	(0.11)	(0.97)	(1.10)	(0.14)	(0.09)	(0.15)

Table 4 continued

Dependent variable:	DCA			PA_DCA1			PA_DCA2		
Adjusted R^2	0.08	0.09	0.08	0.05	0.06	0.06	0.02	0.01	0.02
F-statistic	10.18**	10.78**	10.51**	6.99**	7.33**	7.22**	2.78**	2.30*	2.61**
N	940	940	940	940	940	940	940	940	940

The regression mode is:

$$EM_{it} = \beta_0 + \beta_1 DIVERSIFICATION_{it} + \beta_2 GROWTH_{it} + \beta_3 LEV_{it} + \beta_4 INSIDE_{it} + \beta_5 INST_{it} + \beta_6 DECLINE_{it} + \beta_7 LOSS_{it} + \beta_8 FSIZE_{it} + \beta_9 SF131_{it} + \varepsilon_{it}$$

EM = DCA, PA_DCA1, and PA_DCA2 which are proxies for earnings management;

DCA = discretionary current accruals estimated by cross-sectional Jones (1991) model;

PA_DCA1 = discretionary current accruals estimated with lagged ROA in the cross-sectional Jones (1991) model;

PA_DCA2 = discretionary current accruals of the SEO firms minus the discretionary current accruals of the matched firms;

DIVERSIFICATION = NSEG, NHSALE, proxies for firm diversification;

DSEG = 1 if the firm is operating in multiple segments, and zero otherwise;

NSEG = number of segments reported by SEO firm;

NHSALE = 1—revenue-based Herfindahl index;

DSEG = 1 if diversified firms, and zero otherwise;

GROWTH = 5-year mean growth estimates by analysts;

LEV = ratio of total debt to total equity;

INSIDE = percent of shares held by the management;

INST = percent of shares held by institutional investors;

DECLINE = 1 if there is a decline in pre-managed earnings from previous year's earnings, and zero otherwise;

LOSS = 1 if the pre-managed earnings are negative, and zero otherwise;

FSIZE = natural logarithm of market capitalization at fiscal year end prior to the equity issue;

SF131 = 1 when the fiscal year end of the SEO firms falls on or after 1, January 1998, and zero otherwise

t-statistics are shown in the parentheses;*Significant at $p < 0.05$ (two-tailed);**Significant at $p < 0.01$(two-tailed)

Table 5 Regression results

Dependent variable:	DCA			PA_DCA1			PA_DCA2		
Constant	0.134	0.112	0.154	0.109	0.082	0.129	0.270	0.213	0.295
	(1.26)	(1.06)	(1.45)	(0.92)	(0.71)	(1.10)	(1.25)	(0.98)	(1.37)
DSEG	0.127			0.144			0.268		
	(2.54)*			(2.61)**			(2.68)**		
NSEG		0.066			0.071			0.075	
		(3.37)**			(3.28)**			(1.83)	
NHSALE			0.328			0.376			0.527
			(3.22)**			(3.32)**			(2.53)*
GROWTH	0.003	0.003	0.003	0.004	0.005	0.004	0.002	0.002	0.002
	(2.21)*	(2.39)*	(2.30)*	(2.76)**	(2.89)**	(2.86)**	(0.84)	(0.66)	(0.74)
LEV	–0.005	–0.004	–0.004	–0.005	–0.004	–0.004	–0.0004	0.0001	–0.0003
	(–0.64)	(–0.53)	(–0.57)	(–0.57)	(–0.48)	(–0.50)	(–0.03)	(0.00)	(–0.02)
INSIDE	–0.194	–0.180	–0.191	–0.203	–0.184	–0.200	0.051	0.051	0.041
	(–2.00)*	(–1.87)	(–1.99)*	(–1.89)	(–1.71)	(–1.86)	(0.26)	(0.26)	(0.21)
INST	–0.157	–0.165	–0.164	–0.219	–0.227	–0.231	0.119	0.086	0.095
	(–1.66)	(–1.76)	(–1.75)	(–2.04)*	(–2.12)*	(–2.16)*	(0.63)	(0.46)	(0.51)
DECLINE	0.129	0.123	0.125	0.104	0.097	0.099	0.064	0.074	0.060
	(2.48)*	(2.38)*	(2.44)*	(1.77)	(1.66)	(1.69)	(0.66)	(0.76)	(0.62)
LOSS	0.143	0.147	0.148	0.152	0.157	0.158	0.181	0.186	0.184
	(3.07)**	(3.18)**	(3.20)**	(2.92)**	(3.02)**	(3.04)**	(1.89)	(1.93)	(1.92)*
FSIZE	–0.034	–0.042	–0.038	–0.028	–0.036	–0.032	–0.066	–0.060	–0.064
	(–2.10)*	(–2.54)*	(–2.35)*	(–1.57)	(–1.97)*	(–1.81)	(–2.00)*	(–1.81)	(–1.95)
SF131	0.029	0.036	0.035	0.017	0.025	0.023	–0.113	–0.095	–0.095
	(0.34)	(0.42)	(0.40)	(0.18)	(0.26)	(0.23)	(–0.65)	(–0.55)	(–0.55)

Table 5 continued

Dependent variable:	DCA			PA_DCA1			PA_DCA2		
Adjusted R^2	0.07	0.08	0.07	0.06	0.07	0.07	0.01	0.004	0.01
F-statistic	4.65**	5.18**	5.07**	4.33**	4.75**	4.78**	1.59	1.20	1.52
N	510	510	510	506	506	506	471	471	471

The regression model is:

$$EM_{it} = \beta_0 + \beta_1 DIVERSIFICATION_{it} + \beta_2 GROWTH_{it} + \beta_3 LEV_{it} + \beta_4 INSIDE_{it} + \beta_5 INST_{it} + \beta_6 DECLINE_{it} + \beta_7 LOSS_{it} + \beta_8 FSIZE_{it} + \beta_9 SF131_{it} + \beta_{10} EVENT + \varepsilon_{it}$$

EM = DCA, PA_DCA1, and PA_DCA2 which are proxies for earnings management;

DCA = discretionary current accruals estimated by cross-sectional Jones (1991) model;

PA_DCA1 = discretionary current accruals estimated with lagged ROA in the cross-sectional Jones (1991) model;

PA_DCA2 = discretionary current accruals of the SEO firms minus the discretionary current accruals of the matched firms;

DIVERSIFICATION = NSEG, NHSALE, proxies for firm diversification;

DSEG = 1 if the firm is operating in multiple segments, and zero otherwise;

NSEG = number of segments reported by SEO firm;

NHSALE = 1—revenue-based Herfindahl index;

DSEG = 1 if diversified firms, and zero otherwise;

GROWTH = 5-year mean growth estimates by analysts;

LEV = ratio of total debt to total equity;

INSIDE = percent of shares held by the management;

INST = percent of shares held by institutional investors;

DECLINE = 1 if there is a decline in pre-managed earnings from previous year's earnings, and zero otherwise;

LOSS = 1 if the pre-managed earnings are negative, and zero otherwise;

FSIZE = natural logarithm of market capitalization at fiscal year end prior to the equity issue

SF131 = 1 when the fiscal year end of the SEO firms falls on or after 1, January 1998, and zero otherwise

t-statistics are shown in the parentheses;*Significant at $p < 0.05$ (two-tailed); **Significant at $p < 0.01$(two-tailed)

Table 6 Regression results

Dependent variable:	DCA			PA_DCA1			PA_DCA2		
Constant	0.008	–0.007	0.023	0.021	0.004	0.036	0.03	0.008	0.05
	(0.15)	(–0.13)	(0.40)	(0.29)	(0.06)	(0.51)	(0.28)	(0.08)	(0.46)
DSEG	0.092			0.100			0.168		
	(3.28)**			(2.85)**			(3.14)**		
NSEG		0.045			0.047			0.051	
		(3.96)**			(3.31)**			(2.36)*	
NHSALE			0.213			0.232			0.321
			(3.64)**			(3.17)**			(2.88)**
GROWTH	0.003	0.003	0.003	0.001	0.002	0.001	0.002	0.002	0.002
	(3.47)**	(3.61)**	(3.48)**	(1.60)	(1.70)	(1.60)	(1.21)	(1.13)	(1.14)
LEV	–0.003	–0.003	–0.003	–0.002	–0.002	–0.001	0.004	0.004	0.004
	(–0.64)	(–0.69)	(–0.64)	(–0.27)	(–0.31)	(–0.27)	(0.43)	(0.42)	(0.44)
INSIDE	–0.134	–0.126	–0.135	–0.220	–0.212	–0.221	0.022	0.022	0.016
	(–2.36)*	(–2.22)*	(–2.38)*	(–3.11)**	(–2.99)**	(–3.13)**	(0.20)	(0.20)	(0.15)
INST	–0.063	–0.062	–0.068	–0.035	–0.034	–0.039	0.108	0.103	0.098
	(–1.17)	(–1.15)	(–1.26)	(–0.51)	(–0.50)	(–0.59)	(1.05)	(1.00)	(0.96)
DECLINE	0.123	0.121	0.122	0.159	0.156	0.157	0.078	0.081	0.078
	(4.63)**	(4.54)**	(4.57)**	(4.76)**	(4.69)**	(4.71)**	(1.53)	(1.59)	(1.54)
LOSS	0.099	0.103	0.100	0.073	0.078	0.074	0.108	0.110	0.108
	(3.58)**	(3.74)**	(3.62)**	(2.11)*	(2.24)*	(2.15)*	(2.07)*	(2.08)*	(2.06)*
FSIZE	–0.019	–0.024	–0.021	–0.019	–0.025	–0.021	–0.038	–0.039	–0.038
	(–2.06)*	(–2.56)*	(–2.25)*	(–1.66)	(–2.06)*	(–1.83)	(–2.14)*	(–2.14)*	(–2.15)*
SF131	0.006	0.007	0.010	0.011	0.013	0.015	–0.011	–0.006	–0.004
	(0.12)	(0.14)	(0.19)	(0.17)	(0.19)	(0.23)	(–0.11)	(–0.06)	(–0.04)
EVENT	0.047	0.04	0.042	0.031	0.023	0.025	0.022	0.013	0.014
	(0.90)	(0.77)	(0.80)	(0.47)	(0.36)	(0.38)	(0.22)	(0.13)	(0.14)

Table 6 continued

Dependent variable:	DCA			PA_DCA1			PA_DCA2		
Adjusted R^2	0.08	0.09	0.08	0.05	0.06	0.06	0.02	0.01	0.01
F-statistic	9.24**	9.76**	9.52**	6.30**	6.60**	6.51**	2.50**	2.07*	2.34***
N	940	940	940	940	940	940	940	940	940

The regression model is:

$$EM_{it} = \beta_0 + \beta_1 DIVERSIFICATION_{it} + \beta_2 GROWTH_{it} + \beta_3 LEV_{it} + \beta_4 INSIDE_{it} + \beta_5 INST_{it} + \beta_6 DECLINE_{it} + \beta_7 LOSS_{it} + \beta_8 FSIZE_{it} + \beta_9 SF131_{it} + \beta_{10} EVENT + \varepsilon_{it}$$

EM = DCA, PA_DCA1, and PA_DCA2 which are proxies for earnings management;

DCA = discretionary current accruals estimated by cross-sectional Jones (1991) model;

PA_DCA1 = discretionary current accruals estimated with lagged ROA in the cross-sectional Jones (1991) model;

PA_DCA2 = discretionary current accruals of the SEO firms minus the discretionary current accruals of the matched firms;

DIVERSIFICATION = NSEG, NHSALE, proxies for firm diversification;

DSEG = 1 if the firm is operating in multiple segments, and zero otherwise;

NSEG = number of segments reported by SEO firm;

NHSALE = 1—revenue-based Herfindahl index;

DSEG = 1 if diversified firms, and zero otherwise;

GROWTH = 5-year mean growth estimates by analysts;

LEV = ratio of total debt to total equity;

INSIDE = percent of shares held by the management;

INST = percent of shares held by institutional investors;

DECLINE = 1 if there is a decline in pre-managed earnings from previous year's earnings, and zero otherwise;

LOSS = 1 if the pre-managed earnings are negative, and zero otherwise;

FSIZE = natural logarithm of market capitalization at fiscal year end prior to the equity issue

SF131 = 1 when the fiscal year end of the SEO firms falls on or after 1, January 1998, and zero otherwise;

EVENT = 1 if the firm engages in non-articulation events, and zero otherwise

t-statistics are shown in the parentheses; *Significant at $p < 0.05$ (two-tailed); **Significant at $p < 0.01$(two-tailed)

significantly associated with various measures of discretionary current accruals (with the exception that when diversification is measured by NSEG and earnings management by PA_DCA2).

4.4 Non-articulation events

Hribar and Collins (2002) demonstrate that the presumed articulation between the balance sheet and the income statement breaks down due to non-articulation events such as mergers and acquisitions, and divestitures. Since we use balance sheet items to compute current accruals, it is important to control for unusual accruals and non-articulation events. Mergers, acquisitions, and divestitures are important "unusual business circumstances" that may lead to unusual but nondiscretionary accruals. In our SEO sample, 216 (23%) firms were involved in mergers and acquisitions and 32 (3%) firms reported discontinued operations in the year prior to the equity offering.[11] To control for the unusual but large nondiscretionary accruals arising from the non-articulation events, we specify a dummy variable for these significant events (EVENT) in equation (4). EVENT equals one if the firm engages in non-articulation events, and zero otherwise. After controlling for the non-articulation events, the results, which are reported in Table 6, are qualitatively unchanged. Firm diversification is still significantly associated with the three proxies of earnings management. We also restrict our sample to SEO firms that report positive discretionary current accruals, the (unreported) results indicate that the inferences are consistent with that of the full sample. Hence, our findings that diversified issuers are more aggressive in earnings management relative to focused issuers do not appear to be driven by firms experiencing unusual accruals when they discontinued their operations or were involved in mergers and acquisitions.

4.5 Market implications of earnings management by SEO firms

The underperformance of SEO firms is well documented in the finance literature (Loughran and Ritter 1995; Spiess and Affleck-Graves 1995) and that it is associated with earnings management by SEO firms (e.g., Teoh et al. 1998; Rangan 1998). Our findings that firm diversification is associated with earnings management, together with those reported in the prior literature, provide the motivation for investigating how firm diversification and earnings management might affect the long run performance of SEO firms.

To compare the long run performance of the SEO firms, we calculate the buy-and-hold abnormal returns measured by the cumulative monthly stock returns of the SEO firms relative to the matched firms over a 3-year holding period.[12] The same set of matched firms used previously in computing PA_DCA2 is employed to compute the abnormal returns. In other words, the matched firms are selected based on the level of diversification, profitability, industry membership, and year as the sample firms. Stock returns data over a 3-year

[11] Compustat footnote #1 indicates whether a firm engages in a merger or acquisition and Compustat item #66 records the size of discontinued operations.

[12] Long run performance of SEOs is sensitive to the valuation method and depends on the choice of benchmarks used to measure the market return. Loughran and Ritter (2000) suggest that adopting the market return as a benchmark causes a test bias towards no abnormal return as the benchmark includes these SEOs. Lyon et al. (1999) recommend the use of buy-and-hold abnormal returns, which, without rebalancing, accurately represents investor experience.

Table 7 Long-run abnormal returns for SEO sample firms relative to matched firms

	Column 1		Column 2		Column 3		Column 4		Column 5	
	All issuers (N = 736)		Issuers with high DCAs (N = 366)		Issuers with low DCAs (N = 370)		Diversified issuers with High DCAs (N = 128)		All other issuers (N = 608)	
Period[#]	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
(1,6)	0.0223	0.0492*	0.0272	0.0307	0.0172	0.0559*	–0.0406	0.0172	0.0358	0.0576**
(1,12)	0.0469	0.0424	0.0315	0.0196	0.0622	0.0473	–0.0874	–0.0583	0.0747	0.0595
(1,18)	0.0153	–0.0013	–0.0380	–0.0268	0.0678	0.0227	–0.1220	–0.0868*	0.0442	0.0232
(1,24)	–0.0538	–0.0505	–0.1765*	–0.1193**	0.0672	0.0041	–0.2491**	–0.1584**	–0.0126	–0.0140
(1,30)	–0.0516	–0.0422	–0.1541	–0.0733**	0.0495	–0.0060	–0.2004*	–0.1539**	–0.0205	–0.0010
(1,36)	–0.0552	–0.0254	–0.1881*	–0.0907**	0.0763	0.0101	–0.2488**	–0.2801**	–0.0144	0.0075

The long run buy-and hold returns (BHR) after the SEOs is measured by the monthly cumulative buy-and-hold returns of the sample firms minus the corresponding cumulative buy-and-hold returns of the matched firms across the 36 months holding period. For each firm in the sample, we select a matched firm that is in the same 2-digit SIC code and has the similar ROA in the year of SEO. The monthly returns are cumulated relative to the SEO issue date. Discretionary current accruals are considered high when the firm's performance-matched discretionary accruals (*PA_DCA2*) are above the median

*Significant at $p < 0.05$ (two-tailed); **Significant at $p < 0.01$(two-tailed)

holding period are available in CRSP database only for 736 (78%) of our sample and matched firms.

Table 7 presents the mean and median abnormal returns over selected monthly periods for SEO firms relative to their matched firms. In the first column of Table 7, we present the long-run abnormal returns for all SEO firms. Consistent with prior studies, the abnormal returns for all SEO firms are declining over the 3-year holding period. In column two and three, we compare the abnormal returns of issuers with high and low DCAs. DCAs are considered high when the firm's performance-matched discretionary (PA_DCA2) accruals are above the median.[13] We observe a distinct pattern in the long run returns between the high- and low-DCA firms. Consistent with Teoh et al. (1998), the abnormal returns for SEO firms with high DCAs are negative and statistically significant over the 3-year holding period while the abnormal returns for SEO firms with low DCAs are positive though insignificant over the same period. The evidence suggests that SEO firms are temporarily overvalued when the market prices the portion of growth that reflects earnings management in the year prior to the SEO as if such growth is permanent. When the reversal of earnings associated with earnings management takes place, the valuation errors are corrected, hence resulting in poor stock market performance over the 3-year holding period.

More interestingly, when we examine diversified SEO firms with high DCAs versus all other SEO firms in the last two columns of Table 7, we find that the abnormal returns for the diversified issuers with high DCAs are significantly negative after 18 months. In contrast, the abnormal returns of all other issuers do not differ significantly from their matched firms over the various intervals examined. These findings suggest that SEO firms with high accruals underperformed those with low accruals, and that diversified firms with high accruals under-performed all other issuers.

5 Conclusion

Prior research that documents high discretionary accruals prior to seasoned equity offerings does not consider the corporate structure of the issuing firms. We suggest that information asymmetry problems are more severe in a diversified firm and hence the corresponding earnings management is more aggressive in a diversified firm than in a focused firm. Using a set of 940 US firms that issued seasoned equity during 1991–2001, we examine the level of discretionary current accruals between diversified and focused issuers. We find that diversified issuers exhibited larger discretionary current accruals compared to focused issuers. Our results are robust across different measures of earnings management, even after controlling for factors that have been shown to be related to a firm's DCA. Moreover, we find that diversified issuers with high discretionary current accruals underperformed in the long run relative to other SEO firms. The results suggest that the economic effects of the earning management are not insignificant.

Several practical implications of our study unfold. The findings should be of interest to the Securities Exchange Commission (SEC) in its ongoing initiative against earnings management and to the Financial Accounting Standards Board (FASB), which has proposed changes designed to create a more principles-based rather than rules-based approach to standards setting (FASB, 2002). Limiting accounting discretion may increase the informativeness of earnings because it constrains earnings management and

[13] The results remained qualitatively unchanged when we used the median DCA or PA_DCA1 as the cut-off.

increases the comparability of earnings across firms (Fishman and Hagerty 1990). We highlight the critical role of corporate structure in understanding the extent of earnings management by equity-issuing firms. Investors may want to use the information contained in the pre-offering accounting accruals to discriminate among diversified and focused issuers.

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